



#8

SEQUENCE LISTING

<110> Quint, Wilhelmus
Van Doorn, Leendert

<120> PROBES, METHODS AND KITS FOR DETECTION
AND TYPING OF HELICOBACTER PYLORI NUCLEIC ACIDS IN
BIOLOGICAL SAMPLES

<130> INNOG2.001C1

<140> 10/035,978

<141> 2001-12-21

<150> 09/284,725

<151> 1999-04-16

<150> EP 97870133.2

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<151> 1996-10-16

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<400> 37

catgccgctc tttttacaac cgt

23

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<211> 23

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<223> HpdiaS4 vacA-derived probe

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catgccgcct tttttacaac cgt

23

<210> 39

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> HpdiaS5 vacA-derived probe

<400> 39

agtcgcgcyt ttttyacaac cgt

23

<210> 40

<211> 184

<212> DNA

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tgccgccttt ttcacaaccg tgatcattcc agccattggt ggggggtatcg ctacaggcac 120
cgctgtagga acggtctcag ggcttcttag ttggggacta aaacaagccg aagaagccaa 180
taaa 184

<210> 41

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<221> misc_feature

<222> 10, 30, 37, 58, 85, 112

<223> n = A,T,C or G

<221> misc_feature

<222> 10, 30, 37, 58, 85, 112

<223> n = A,T,C or G

<400> 41

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<220>
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aggcactgct gtaggaacgg tctcagggct tcttagttgg ggrctcaaac aagccgaaga 180
agcsaataaa accccrgata aacccgataa agtttggcgc attcaag 227

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<210> 43
<211> 176
<212> DNA
<213> Artificial Sequence

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<220>
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<400> 43
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ctgctgtagg aacgggtctca gggcttcttg gttggggggt caaacaagcc gaagaa 176

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<210> 44
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<220>
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ctgctgtagg aacgggtctca gggcttctta gctggggggt caaacaagcc gaagaagcca 180
ataaa 185

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<210> 45
<211> 204
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<220>
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ggcgctgctg taggaacggg ctcaggggctt cttagctggg ggctcaaaca agccgaacaa 180
gccaataaag ccccgacaa accc 204

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<210> 46

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aggcgctgct gtaggaacgg tttcagggtc tcttggtggt gggctaaaac aagccgaaga 180
agccaataaa accccagata aaccgga 207

<210> 47
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<212> DNA
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aggcgctgct gtaggaacgg tctcagggtc tcttagctgg gggctcaaac aagccgaaga 180
agccaataaa accccggaca aaccgga 207

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aggcgctgct gtaggaacgg tctcagggtc tcttagctgg gggctcaaac aagccgaaga 180
agccaataaa accccagata aaccgga 207

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tgctgttagga acggtctcag ggcttcttag ctgggggctc aaacaagcyg aasaagcsaa 180
taaagcc 187

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<212> DNA
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ctgtaggaac ggtttcaggg cttcttagct gggggctcaa acaagccgaa gaagccaata 180
aaaccccaga taa 193

<210> 52
<211> 196
<212> DNA
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<223> Helicobacter pylori vacA nucleic acid sequence

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ccgctgtagg aacggtttca gggcttctta gctgggggct caaacaagcc gaacaagcca 180
ataaagcccc ggacaa 196

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<211> 131
<212> DNA
<213> Artificial Sequence

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<221> misc feature
<222> 87, 106, 107, 108, 109
<223> n = A,T,C or G

<221> misc feature
<222> 87, 106, 107, 108, 109
<223> n = A,T,C or G

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ggcaccgctg t 131

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<223> Helicobacter pylori vacA nucleic acid sequence

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ggcgctgctg taggaacggt ctcagggctt cttagttggg gactcaaaca agccgaagaa 180
gcgaa 185
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<223> Helicobacter pylori vacA nucleic acid sequence

<221> misc_feature

<222> 87, 143, 165

<223> n = A,T,C or G

<221> misc_feature

<222> 87, 143, 165

<223> n = A,T,C or G

<400> 55

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ggcaccgctg taggaacggt ctnagggctt yttagttggg gactnwaaca agccgaagaa 180
gccataaaaa ccccgataa a 201
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<210> 56

<211> 187

<212> DNA

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<221> misc_feature

<222> 26, 27, 82

<223> n = A,T,C or G

<221> misc_feature

<222> 26, 27, 82

<223> n = A,T,C or G

<400> 56

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tgctgtagga acggtctcag ggcttccttag ctgggggctc aaacaagccg aacaagccaa 180
taaagcc 187
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taaaacc 187

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taaaacc 187

<210> 59
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<223> n = A,T,C or G

<221> misc_feature
<222> 27, 34, 53, 55, 76, 82, 160
<223> n = A,T,C or G

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taaaa 185

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ttcttagttg gggactcaaa caagccgaag aagcgaataa aaccccagta taaacccgat 180
aaagtttggc gcattcaag 199

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<211> 206

<212> DNA

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<400> 62

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agcgaataaa accccagtat aaaccc                                     206

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<210> 63

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 $\langle 222 \rangle$ 143, $\bar{165}$

<223> n = A, T, C or G

<221> misc feature

 $\langle 222 \rangle \quad 143, \bar{165}$

<223> n = A, T, C or G

<400> 63

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gcgaataaaa ccccgataaa acccga                                     206
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ggcgctgctg taggaacggt ctcagggtt cttagctggg ggctcaaaca agccgaacaa 180
gccaataaaag ccccgacaa a                                     201
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ccgctgtagg aacggtctca gggcttctta gttgggggact caaacaagcc gaagaagcga 180
ataaaacccc agataaa 197

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<220>
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ggcaccgctg taggaacggt ctcagggctt cttagttggg gactcaaaca agccgaagaa 180
gcgaataaaa ccccagataa a 201

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ggcactgctg taggaacggt ctcagggctt cttagttggg gactcaaaca agccgaagaa 180
gcgaataaaa cccca 195

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aggcgtgct gtaggaacgg tttcagggct tcttagctgg gggctcaa²c aagccgaaca 180
agccaataaa gccccg 196

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tagtggtgggc attaatgagt accgaactag gggctaacac gccaaatgat ccatacaca 60
gagagagtcg cgcctttttt acaaccgtga tcattccagc cattgttggg ggtatcgcta 120
caggcgctgc tgtaggaacg gtctcagggc ttcttagtcg ggggctcaaa caagccgaac 180
aagccaataa agcccc 196

<210> 70
<211> 232
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 70
caatcgccct attatctctc tcgctctagt gggggtgtta atgggtaccg aactaggggc 60
taacacgcca aacgatccca tacacagcga gagtcgcgcc tttttacaa ccgtgatcat 120
tccagccatt gttgggggta tcgctacagg cgctgctgta ggaacgggtt cagggcttct 180
tagctggggg ctcaacaag ccgaacaagc caataaagcc ccgacaaaac cc 232

<210> 71
<211> 228
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 71
aatcgcccta ttatctctct cgctctagt ggggtgttaa tgggtaccga actaggggct 60
aacacgcca aacgatccca acacagcgag agtcgcgcct ttttcacaac cgtgatcatt 120
ccagccattg ttggaggat cgctacagg gctgctgtag gaacgggtctc agggcttctt 180
agctgggggc tcaaacaagc cgaacaagcc aataaagccc cggacaaa 228

<210> 72
<211> 228
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 72
aatcgcccta ttatctctct cgcttttagtg ggggtgttaa tgggcaccga actaggggct 60
aacacgcca aacgatccca acacagcgag agtcgcgcct ttttcacaac cgtgatcatt 120
ccagccattg ttgggggat cgctacagg gctgctgtag gaacgggtctc agggcttctt 180
agctgggggc tcaaacaagc cgaacaagcc aataaagccc cggataaa 228

<210> 73
<211> 233
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 73
aatcgcccta ttatctctct cgcttttagag ggggtgttaa taggcaccga actaggggct 60
aacacgcca atgatccca acacagcgag agtcgcgcct tttttacaac cgttattatt 120
ccagccattg ttgggggat cgctacagg gctgctgtag gaacgggtctc agggcttctt 180

agctgggggc tcaaacaagc cgaacaagcc aataaagccc cggataaacc cga

233

<210> 74
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 74
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caacacctta gatttttagtg gtgttacagg taagggtcaat atcaacaagc tcatcacagc 120
ttccactaat gtggccgta aaaacttcaa cattaatgaa ttgattgtta aaaccaatgg 180
tgtgagtggtg ggggaatata ctcatcttag cgaagatata ggcagtcaat cgcgcatcaa 240
taccgtgcgt ttggaaactg gcactaggtc aatcttttct ggggggtgtta aatttaaagg 300

<210> 75
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 75
tttaaagggtg gatgctcata cagctaattt taaaggtatt gatacgggta atgggtggttt 60
caacacctta gatttttagtg gtgttacagg taagggtcaat atcaacaagc tcattacggc 120
ttccactaat gtggccgta aaaacttcaa cattaatgaa ttgttggtta agaccaatgg 180
ggtgagtggtg ggggaatata ctcatcttag cgaagatata ggcagtcaat cgcgcatcaa 240
taccgtgcgt ttggaaactg gcactaggtc aatcttttct ggggggtgtca aatttaaagg 300

<210> 76
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 76
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caacaccttg gatttttagtg gcgttacaga caaagtcaat atcaacaagc tcatcacagc 120
ttccactaat gtggccatta aaaacttcaa cattaatgaa ttgttggtta agaccaatgg 180
ggtgagtggtg ggggaatata ctcatcttag cgaagatata ggcagtcaat cgcgcatcaa 240
cacctgcgt ttagaaactg gcactaggtc aatcttttct ggggggtgtca aatttaaaag 300

<210> 77
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 77
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caacacctta gatttttagtg gtgttacagg taagggtcaat atcaacaagc tcatcacagc 120

ttccactaat gtggccgcta aaaacttcaa cattaatgaa ttgattgtta aaaccaatgg 180
ggtgagtgtg ggggaatata ctcatttttag cgaagatata ggcagtcaat cgcgcatcaa 240
taccgtgcgt ttggaaactg gcactaggtc aatctattct ggcggtgtta aatttaaagg 300

<210> 78
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 78
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caacacctta gatttttagtg gtgttacagg taagggtcaat atcaacaagc tcatcacagc 120
ttccactaat gtggccgcta aaaacttcaa cattaatgaa ttgattgtta aaaccaatgg 180
ggtgagtgtg ggggaatata ctcatttttag cgaagatata ggcagtcaat cgcgcatcaa 240
taccgtgcgt ttggaaactg gcactaggtc aatctattct ggcggtgtta aatttaaagg 300

<210> 79
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 79
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caacacctta gatttttagtg gtgttacaaa caaagtcaat atcaacaagc tcattacagc 120
ttccactaat gtggccgcta aaaacttcaa cattaatgaa ttgttggtta agattaatgg 180
ggtgagtgtg ggggaatata cttatttttag cgaagatata ggcagtcaat cgcgcatcaa 240
caccgtgcgt ttggaaactg gcactaggtc aatctattct ggcggtgtta aatttaaagg 300

<210> 80
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 80
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caacacctta gatttttagtg gtgttacagg taagggtcaat atcaacaagc tcatcacggc 120
ttccactaat gtggccgcta aaaacaacaa cattaatgaa ttggtgggta aaaccaatgg 180
gataagtgtg ggggaatata ctcatttttag cgaagatata ggcagtcaat cgcgcatcaa 240
taccgtgcgt ttggaaacag gcactaggtc aatcttttct ggggggtgtca aatttaaaag 300

<210> 81
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 81
tttaaaagtg gatgctcata cagctaattt taaaggtatt gatacgggta atgggtgggtt 60
caacacctta gatttttagtg gtgttacagg taaggtcaat atcaacaagc tcattacggc 120
ttccactaat gtagccggtta aaaacttcaa cattaatgaa ttgttggtta agaccaatgg 180
ggtgagtgtg ggggaatata ctcatTTtag cgaagatata ggcagtcaat cgcgcataca 240
caccgtgcgt ttggaaactg gcactaggtc aatcttttct ggggggtgtca aatttaaaag 300

<210> 82
<211> 300
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 82
tttaaagggtg gatgctcata cagctaattt taaaggtatt gatacgggta atgggtgggtt 60
caacacctta gatttttagtg gtgttacagg taaggtcaat atcaacaagc tcatcacagc 120
ttccactaat gtggccggtta aaaacttcaa cattaatgaa ttgattgtta aaaccaatgg 180
gataagtgtg ggggaatata ctcatTTtag cgaagatata ggaagtcaat cgcgcataca 240
taccgtgcgt ttggaaactg gcactagatc aatcttttct ggggggtgtta aatttaaaag 300

<210> 83
<211> 375
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 83
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gaatttaaga gtgaatggcc atagcgctca ttttaaaaat attgatgcc acaagagcga 120
taacgggcta aacactagcg ctttggattt cagcggcggt acagacaaag tcaatatcaa 180
caagctcact acatctgcc aataatgtgaa cggttaaaaac tttgacgtta aggaattggg 240
ggttacaacc cgtgttcaga gttttgggca atacactatt tttggcgaaa atataggcga 300
taagtctcgc attggtgtcg tgagtttgca aacgggatat agcccggcct attctggggg 360
cgttactttt aaaag 375

<210> 84
<211> 375
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 84
cttaagagtg gatgctcata cagcttattt taatggcaat atttatTTtg gaaaatccac 60
gaatttaaga gtgaatggcc atagcgctca ttttaaaaat attgatgcc gtaagagcga 120
taacgggcta aacactagtg ctttggattt tagcggcggt acagataaag tcaatatcaa 180
caagctcact acatctgcc aataatgtgaa cggttaaaaac tttgacatta aggaattggg 240
ggttacaacc cgagttcaaa gttttgggca atacactatt tttggcgaaa atataggcga 300
taagtctcgc attggtgtcg tttagtttgca aacgggatat agcccggcct attctggggg 360
cgttactttt aaaag 375

<210> 85
<211> 374
<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 85

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gaatttaaga gtgaatggcc atagcgctca ttttaaaaat attgatgcca gtaagagcga 120
taacgggcta aacactacca ctttggattt cagcggcggt acagataaag tcaatatcaa 180
caagctcact acatctgcc ctaatgtgaa cattaaaaac tttgacatta aggaattagt 240
ggttacaacc cgagttcaga gttttgggca atacactatt tttggcgaaa atataggcga 300
taagctgcac attggtgtcg tgagtttgca aacgggatat agcccagcct attctggggg 360
gcttactttt aaag 374
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<210> 86

<211> 375

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 86

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gaatttaaga gtgaatggcc atagcgctca ttttaaaaat attgatgcca gtaagagcga 120
taacgggcta aacactagct ctttggattt cagtggcggt acagacaaag tcaatatcaa 180
caagctcact acatctgcc ctaatgtgaa cgttaaaaac tttgacatta aggaattggt 240
ggttacaacc cgcgttcaga gttttgggca atacactatt tttggcgaaa atataggcga 300
taagtctcgc attggtgtcg ttagtttgca aacgggatat agcccggcct attctggggg 360
cgttactttt aaaag 375
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<210> 87

<211> 365

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 87

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gtgaatggcc atagcgctca ttttaaaaat attgatgcca gtaagagcga taacgggcta 120
aacactagcg ctttggattt yagcggcggt acagayaaag tcaatatcaa caagctcact 180
acatctgcc ctaatgtgaa cgttaaaaac tttgacatta aggaattagt ggttacaacc 240
cgagttcaaa gttttgggca atacactatt tttggcgaaa atataggcga taagtctcgc 300
attggtgtcg ttagtttgca aacgggatat agcccggcct attctggggg cgttactttt 360
aaaag 365
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<210> 88

<211> 375

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 88

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tttaagaggg gatgctcata cagcttattt taatggcaat atttatttg gaaaatccac 60
gaatttaaga gtgaatggcc atagcgctca ttttaaaaat attgatgcca gtaagagcga 120
taacgggcta aacactagcg ytttggattt tagcggcggt acagayaaag tcaatatcaa 180
caagctcact acatctgcc ctaatgtgaa crttaaaaac tttgayatta aggaattggt 240
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ggttacaacc cgagttcaaa gttttgggca atacactatt tttggcgaaa atataggcga 300
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 cgttactttt aaaag 375

<210> 89
 <211> 375
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Helicobacter pylori vacA nucleic acid sequence

<400> 89
 ttttaagcgtg gatgctcata cagcttattt taatggtaat atttatctgg gaaaatccac 60
 gaatttaaga gtgaatggcc atagcgctca ttttaaaaaat attgatgcca caaagagcga 120
 taacgggcta aacactagcg ctttggattt cagcggcggt acagataaag tcaatatcaa 180
 caagctcact acatctgcca ctaacgtgaa cattaataaac tttgacatta aggaattggt 240
 ggttacaacc cgagttcaaa gttttgggca atacactatt tttggcgaaa atataggcga 300
 taagtctcgc attggtgtcg tgagtttgca aacgggatat agcccgccct attctggggg 360
 cgttactttt aaaag 375

<210> 90
 <211> 375
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Helicobacter pylori vacA nucleic acid sequence

<400> 90
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 gaatttaaaa gtgaatggcc atagcgctca ttttaaaaaat attgatgcca gtaagagcga 120
 taatggtcta aacactagtg ctttggattt gagcggcggt acagacaaag tcaatatcaa 180
 caagctcact acagctgcca ctaatgtgaa cattaataaac tttgacatta aggaattagt 240
 ggttacgacc cgtgttcaga gttttgggca atacactatt tttggcgaaa atataggaga 300
 tcaatcgcgc attggtgtcg ttagtttgca aactggctat agcccgccct attctggggg 360
 cgttactttt aaaag 375

<210> 91
 <211> 375
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Helicobacter pylori vacA nucleic acid sequence

<400> 91
 cttaagagt gatgctcata cagcttattt taatggcaat atttatctgg gaaaatccac 60
 gaatttaaga gtgaatggcc atagcgctca ttttaaaaaat attgatgcta gtaagagcga 120
 taacgggcta aacactagcg ctttggattt tagcggcggt acagacaaag tcaatatcaa 180
 caagctcact acatctgcca ctaatgtgaa cattaataaac tttgacatta aggaattggt 240
 ggttacaacc cgagttcaaa gttttgggca atacactatt tttggcgaaa atataggcga 300
 taagtctcgc attggtgtcg tgagtttgca aacgggatat agcccgccct attctggggg 360
 cgttactttt aaaag 375

<210> 92
 <211> 449
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Helicobacter pylori cagA nucleic acid sequence

<400> 92

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tttatcaata atcttcaagt agcttttctt aaagttgata acgctgtcgc ttcatacgat 120
cctgatcaaa aaccaatcgt tgataagaac gatagggata ataggcaagc ttttgatgga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt cagactttat caataagagc aatgatttaa tcaacaaaga cgctctcatt 300
gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta cccaattttc 360
acaagttggg tgtcccatca aaacgatccg tctaaaatca acacccgatc gatccgaaat 420
tttatggaaa atatcatata accccctat 449
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<210> 93

<211> 449

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori cagA nucleic acid sequence

<400> 93

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tttatcaata atcttcaagt agcttttctt aaagttgata acgctgtcgc ttcatacgat 120
cctgatcaaa aaccaatcgt tgataagaac gatagggata acaggcaagc ttttgatgga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt cagactttat caataagagc aatgatttaa tcaacaaaga cgctctcatt 300
gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta cccaattttc 360
acaagttggg tgtcccatca aaacgatccg tctaaaatca acacccgatc gatccgaaat 420
tttatggaaa atatcatata accccctat 449
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<210> 94

<211> 449

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori cagA nucleic acid sequence

<400> 94

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tttatcaata atcttcaagt agcttttctt aaagttgata acgctgtcgc ttcatacgat 120
cctgatcaaa aaccaatcgt tgataagaac gatagggata acaggcaagc ttttgatgga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt cagactttat caataagagc aatgatttaa tcaacaaaga cgctctcatt 300
gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta cccaattttc 360
acaagttggg tgtcccatca aaacgatccg tctaaaatca acacccgatc gatccgaaat 420
tttatggaaa atatcatata accccctat 449
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<210> 95

<211> 449

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori cagA nucleic acid sequence

<400> 95

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tttatcaata atcttcaagt ggcttttctt aaagttgata acgctgtcgc ttcatacgat 120
cctgatcaaa aaccaatcgt tgataagaac gatagggata ataggcaagc ttttgatgga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
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cagtattttt cagactttat caataagagc aatgatttaa tcaacaaaga cgctctcatt 300
gatgtagaat cttccacaaa gagcttttcag aaattttggg atcagcggtta ccgaattttc 360
acaagttggg tgtcccatca aaacgatccg tctaaaatca acacccgatc gatccgaaat 420
ttcatggaaa atatcatata accccctat 449

```

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<210> 96
<211> 449
<212> DNA
<213> Artificial Sequence

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<220>
<223> Helicobacter pylori cagA nucleic acid sequence

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<400> 96
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cctgatcaaaa aaccaatcgt tgataagaac gatagggata acaggcaagc ttttgatgga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt caaactttat caataagagc aatgatctaa tcaacaaaga caatctcatt 300
gatgtagaat cttccaaaaa gagcttttcag aaattttggg atcagcggtta ccgaattttc 360
acaagttggg tgtcccatca aaacgatccg tctaaaatca acacccgatc gatccgaaat 420
tttatggaaa atatcatata accccctat 449

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<210> 97
<211> 449
<212> DNA
<213> Artificial Sequence

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<220>
<223> Helicobacter pylori cagA nucleic acid sequence

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<400> 97
atgactaacg aaaccattaa ccaacaacca caaaccgaag cggcttttaa cccgcagcaa 60
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cctgaccaaaa aaccaatcgt tgataagaac gatagggata acaggcaagc ttttgataga 180
atctcacaaat taaggggagga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt cagactttat cgataagagc aacgatttaa tcaacaaaga cgctctcatt 300
gatgtagaat cttccacaaa gagcttttcag aaattttggg atcagcggtta ccgaattttc 360
acaagttggg tgtcccatca aaacgatccg tctaaaatca acacccgatc gatccgaaat 420
tttatggaaa atatcatata accccctat 449

```

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<210> 98
<211> 449
<212> DNA
<213> Artificial Sequence

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<220>
<223> Helicobacter pylori cagA nucleic acid sequence

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<400> 98
atgactaacg aaaccattaa ccaacaacca caaaccgaag cggcttttaa cccgcagcaa 60
tttatcaata atcttcaagt ggcttttctt aaagttgata acgctgtcgc ttcatacgat 120
cctgatcaaaa aaccaattat tgataagaac gatagggata acaggcaagc ttttgatgga 180
atctcgcaat taagggaaga atattccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt cagactttat cgataagagc aatgatttaa tcaacaaaga caatctcatt 300
gatgtagaat cttccacaaa gagcttttcag aaattttggg atcagcggtta ccgaattttc 360
acaagttggg tgtcccatca aaacgatccg tctaaaatca acacccgatc gatccgaaat 420
tttatggaaa atatcatata accccctat 449

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<210> 99
<211> 449

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<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori cagA nucleic acid sequence

<400> 99
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tttatcaata atcttcaagt agcttttctt aaagttgata atgctgtcgc ttcatacgat 120
tctgatcaaa aaccaatcat tgataagaac gatagggata acaggcaagc ttttgataga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt cagactttat cgataagagc aacgatttaa tcaacaaaga caatctcatt 300
gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta ccgaattttc 360
acaagttggg tgtcccatca aaatgatccg tctaaaatca acacccgatc gatccgaaat 420
tttatggaaa atatcatata accccctat 449

<210> 100
<211> 449
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori cagA nucleic acid sequence

<400> 100
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tttattaata atcttcaggt agcttttctt aagcttgata acgctgtcgc ttcatttgat 120
cctgatcaaa aaccaatcgt tgataagaat gatagggata acaggcaagc ttttgatgga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
cagtattttt cagactttat caataagagc aatgatttaa tcaacaaaga cgctctcatt 300
gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta ccgaattttc 360
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<220>
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cctgatcaaa aaccaatcgt tgataagaac gatagggata acaggcaagc ttttgatgga 180
atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
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gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta ccgaattttc 360
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<210> 102
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<220>
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<400> 102

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atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctac caaaaagaat 240
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gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta cgaattttc 360
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<210> 103

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<400> 103

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<210> 104

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<400> 104

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<210> 105

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<400> 105

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atctcgcaat taagggaaga atactccaat aaagcgatca aaaatcctgc caaaaagaat 240
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gatgtagaat cttccacaaa gagctttcag aaatttgggg atcagcgta ccaaattttc 360
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449

<210> 106

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atctcgcagc taagggagga attcgtaaat aaagcgatca aaaatcctgc caaaaagaat 240
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gatacagggt cttccataaa gagctttcag aaatttgagg ctcagcgtaa ccaaattttt 360
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<210> 107

<211> 464

<212> DNA

<213> Artificial Sequence

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<223> Helicobacter pylori cagA nucleic acid sequence

<400> 107

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caagcttttg agaaaatctc gcagctaagg gaggaattcg ctaataaagc gatcaaaaat 240
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aaagacagtc tcattgatac aggttcttcc ataaagagct ttcagaaatt tgggactcag 360
cgttacccaa tttttatgaa ttgggtgtcc catcaaaaag atccatctaa aatcaacacc 420
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<210> 108

<211> 464

<212> DNA

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<223> Helicobacter pylori cagA nucleic acid sequence

<400> 108

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caagcttttg agaaaatctc gcaactaagg gaagaatacg ccaataaagc gatcaaaaat 240
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<210> 109

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<223> Helicobacter pylori cagA nucleic acid sequence

<400> 109

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gtcgcttcat ttgatcctga tcaaaaacca atcgttgata agaatgatag ggataacagg 180
caagcttttg agaaaatctc gcaactaagg gaagaatacg ccaataaagc gatcaaaaat 240
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aaagacaatc tcattgctgt agattcttct gtagagagct ttaagaaatt tggggatcag 360
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cgacaaatcc gaaattttat ggaaaatata atacaacccc ctat 464
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<210> 110

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caagcttttg agaaaatctc gcaactaagg gaagaatacg ccaataaagc gatcaaaaat 240
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aaagacaatc tcattgctgt agattcttcc gtagatagct ttaagaaatt tggggatcag 360
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<210> 111

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gtcgcttcat ttgatccgga tcaaaaacca atcgttgata agaatgatag ggataacagg 180
caagcttttg agaaaatctc gcaactaagg gaagaatacg ccaataaagc gatcaaaaat 240
cccacaaaaa agaatacagta tttttcagac tttatcaata agaccaatga tttgatcaac 300
aaagacaatc tcattgctgt agattcttcc gtagagagct ttaagaaatt tggggatcag 360
cgttaccaaa tttttacgag ttgggtgtcc cttcaaaaag atccgtctaa aatcaacacc 420
caacaaatcc gaaattttat ggaaaatata atacaacccc ctat 464
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<210> 112

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gttgcttcat ttgatccgga tcaaaaacca atcgttgata agaatgatag ggataacagg 180
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caagcttttg agaaaatctc gcaactaagg gaagaatacg ccaataaagc gatcaaaaat 240
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aaagacaatc tcattgctgt agattcttcc gtagatagct ttaagaaatt tggggatcag 360
cgttaccaa tttttacgag ttgggtgtcc cttcaaaaag atccgtctca aatcaacacc 420
caacaaatcc aaaattttat ggaaaatata atacaacccc ctat 464

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<210> 113

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<223> Helicobacter pylori cagA nucleic acid sequence

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caagcttttg agaaaatctc gcaactaagg gaagaatacg ccaataaagc gatcaaaaat 240
cccacaaaaa agaatacagta tttttcagac tttatcaata agagcaatga tttgatcaac 300
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<210> 114

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<210> 115

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132

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<210> 146
<211> 105

<212> DNA
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<220>
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<400> 146
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<210> 147
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<220>
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<400> 147
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<210> 148
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<220>
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<400> 148
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<210> 149
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<220>
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<400> 149
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<400> 150
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<210> 151
 <211> 105
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<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 151

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<210> 152

<211> 105

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<400> 152

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<210> 153

<211> 105

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 153

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<210> 154

<211> 105

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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<222> 27, 34, 53, 55, 76, 82

<223> n = A,T,C or G

<221> misc_feature

<222> 27, 34, 53, 55, 76, 82

<223> n = A,T,C or G

<400> 154

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<210> 155

<211> 105

<212> DNA

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<220>

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<210> 156
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<212> DNA
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<220>
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<400> 156
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<210> 157
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<212> DNA
<213> Artificial Sequence

<220>
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<400> 157
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<210> 158
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<212> DNA
<213> Artificial Sequence

<220>
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<400> 158
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<210> 159
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<220>
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<220>
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<400> 160

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<210> 161
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 161
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tgccgccttt ttcacaaccg tgatcattcc agcvattgtg gggag 105

<210> 162
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<220>
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<400> 162
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tgccgccttt ttcacgaccg tgatcattcc agccattggt ggggg 105

<210> 163
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
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<400> 163
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tgccgccttt ttcacgaccg tgatcattcc agccattggt ggggg 105

<210> 164
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 164
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tgccgccttt ttcacgaccg tgatcattcc agccattggt ggggg 105

<210> 165
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 165
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tgccgccttt ttcacgaccg tgatcattcc agccattggt ggggg 105

<210> 166

<211> 105

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 166

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<210> 167

<211> 105

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 167

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tgccgccttt ttcacaaccg taatcattcc agccattggt ggggg 105

<210> 168

<211> 105

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 168

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<210> 169

<211> 105

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<221> misc_feature

<222> 82

<223> n = A,T,C or G

<221> misc_feature

<222> 82

<223> n = A,T,C or G

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<211> 105

<212> DNA

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<400> 170

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<210> 171

<211> 105

<212> DNA

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 171

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<210> 172

<211> 105

<212> DNA

<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 172

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<210> 173

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<212> DNA

<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 173

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tgccgccttt ttcacaaccg tgatcattcc agccattggt gggggg                      105
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<210> 174

<211> 105

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 174

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tgccgccttt ttcacaaccg tgatcattcc agccattggt gggggg                      105
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<210> 175

<211> 105

<212> DNA

<213> Artificial Sequence

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<220>
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<221> misc_feature
<222> 26, 27
<223> n = A,T,C or G

<221> misc_feature
<222> 26, 27
<223> n = A,T,C or G

<400> 175
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tgccgccttt tttacaaccg tgatcattcc agccattggt gggggg 105

<210> 176
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<221> misc_feature
<222> 82, 101, 102, 103, 104
<223> n = A,T,C or G

<221> misc_feature
<222> 82, 101, 102, 103, 104
<223> n = A,T,C or G

<400> 176
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<210> 177
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 177
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tgccgccttt ttcacgaccg tgatcattcc agccattggt ggggg 105

<210> 178
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 178
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tgccgccttt ttcacaaccg tgatcattcc agccattggt ggggg 105

<210> 179

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<211> 105
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 <220>
 <223> Helicobacter pylori vacA nucleic acid sequence

 <400> 179
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 <213> Artificial Sequence

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 <223> Helicobacter pylori vacA nucleic acid sequence

 <400> 180
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 <210> 181
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 <212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 181
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 <210> 182
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 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Helicobacter pylori vacA nucleic acid sequence

 <400> 182
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 <210> 183
 <211> 105
 <212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 183
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 <210> 184
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<212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 184
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 <210> 185
 <211> 105
 <212> DNA
 <213> Artificial Sequence

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 <210> 186
 <211> 105
 <212> DNA
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 <221> misc_feature
 <222> 7, 27, 34, 55, 82
 <223> n = A,T,C or G

 <221> misc_feature
 <222> 7, 27, 34, 55, 82
 <223> n = A,T,C or G

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 <210> 187
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 <212> DNA
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 <210> 188
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 <212> DNA
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<400> 188
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tgccgccttt tttaacaaccg tgattattcc agccattgtg ggggg 105

<210> 189
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
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tgccgccttt tttaacaaccg tgattattcc agccattgtg ggggg 105

<210> 190
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
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tgccgccttt tttaacaaccg tgattattcc agccattgtg ggggg 105

<210> 191
<211> 105
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<220>
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<400> 191
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tgccgccttt tttaacaaccg tgattattcc agccattgtg ggggg 105

<210> 192
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
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<400> 192
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tgccgccttt ttyacraccg tgatcattcc agccattgtt ggrgg 105

<210> 193
<211> 105
<212> DNA
<213> Artificial Sequence

<220>
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<400> 193
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tgccgccttt ttcacaaccg tggttcattcc agccattgtt ggggg 105

<210> 194
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gcacttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttacg 240
acccggtgtc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaactggc tatagcccgg cctattcttg gggcgttact 360
tt 362

<210> 195
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gtgcttttga tttgagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttaca 240
acccggtgtc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtcg 300
cacattggtg tcgttagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
tt 362

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ctaaacacta gcgcttttga tttgagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgagttc aaagtttttg gcaatacact atttttggcg aaaatatagg cgataagtcg 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
tt 362

<210> 197
<211> 362
<212> DNA
<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 197

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ctaaacacta gcgcttttga tttgagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtcg 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
tt
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<210> 198

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 198

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ctaaacacta gcgcttttga tttcagcggc gttacagata aagtcaatat caacaagctc 180
actacatctg ccactaacgt gaacattaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
tt
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<210> 199

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 199

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ctaaacacta gcacttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgatcagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccgg cttattcttg gggcgttact 360
tt
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<210> 200

<211> 362

<212> DNA

<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gcgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
tt
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<210> 201
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<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 201
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2

<210> 202
<211> 362
<212> DNA
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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 202
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ctaaacacta gtgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttaca 240
acccgagttc aaagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360
tt 362

<210> 203
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 203
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ctaaacacta gtgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttaca 240
acccgagttc aaagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360
tt 362

<210> 204
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 204
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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccagcaagag cgataacggg 120
ctaaacacta gtgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttaca 240
acccgagttc aaagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360

tt

362

<210> 205

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 205

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ctaaacacta gtgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtgggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
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362

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<212> DNA

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 206

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ctaaacacta gcgcttttga ttttagtggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtgggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccag cctattcttg gggcgttact 360
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362

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<212> DNA

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 207

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ctaaacacta gtgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agttgttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccag cctattcttg gggcgttact 360
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362

<210> 208

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gcgctttgga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttaca 240
acccgtgttc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaatggga tatagcccgg cctattcttg gggcgttact 360
tt
362

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<210> 209

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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aaagtgaatg gccatagcgc tcatttttaa aatattgatg ccagtaagag cgataacggg 120
ctaaacacta gcgctttgga tttgagcggc gttacagaca aagtcaatat caacaagctc 180
actacagctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt ggttggttac 240
acccgtgttc agagtttttg acaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cttattcttg gggcgttact 360
tt
362

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<210> 210

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gctctttgga tttcagtggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtgggttaca 240
acccgagttc agagtttttg gcaatacact atttttggcg aaattatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
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362

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<210> 211

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gtgctttgga ttttagcggc gttacagata aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtgggttaca 240
acccgagttc aaagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
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362

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<210> 212

<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gcgctttgga tttgagtggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttaca 240
acccgtgttc agagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360
tt 362

<210> 213
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 213
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aaagtgaatg gccatagcgc tcatttttaaa aatattgatg ccagtaagag cgataatggg 120
ctaaacacta gtgctttgga tttgagcggc gttacagaca aagtcaatat caacaagctc 180
actacagctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttacg 240
acccgtgttc agagttttgg gcaatacact atttttggcg aaaatatagg agatcaatcg 300
cgcattggtg tcgttagttt gcaaactggc tatagcccgg cctattctgg gggcgttact 360
tt 362

<210> 214
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

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aaagtgaatg gccatagcgc tcatttttaaa aatattgatg ccactaagag cgataatggg 120
ctaaacacta gcgctttgga tttgagcggc gttacaaaca aggtcaatat caacaagctc 180
actacagctg ccactaatgt gtccattaaa aactttgaca ttaaggaatt agtggttacg 240
acccgtgttc agagttttgg gcaatacact atttttggcg aaaatatagg cgatcaatcg 300
cgcattggtg tcgttagttt gcaaactggc tatagcccgg cctattctgg gggcgttact 360
tt 362

<210> 215
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 215
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agagtgaatg gccatagcgc tcatttttaaa aatattgatg ccagtaagag cgataacggg 120

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ctaaacacta gcgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aacttttgaca ttaaggaatt ggtgggttaca 240
acccgtgttc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgattgggtg tcgttagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
tt
362

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<210> 216

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 216

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agagtgaatg gccatagcgc tcattttaaa aatattgatg ccagcaagag cgataacggg 120
ctaaacacta gcgcttttga ttttagcggc gttacagata aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtgggttaca 240
acccgtgttc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgattgggtg tcgtgagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
tt
362

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<210> 217

<211> 362

<212> DNA

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<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 217

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agagtgaatg gccatagcgc tcattttaaa aatattgatg ctagtaagag cgataacggg 120
ctaaacacta gcgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt agtgggttaca 240
acccgtgttc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgattgggtg tcgtgagttt gcaaacggga tatagcccag cctattcttg gggcgttact 360
tt
362

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<210> 218

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 218

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agagtgaatg gccatagcgc tcattttaaa aatattgatg ccagcaagag cgataacggg 120
ctaaacacta gcgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgacg ttaaggaatt ggtgggttaca 240
acccgtgttc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgattgggtg tcgtgagttt gcaaacggga tatagcccgg cctattcttg gggcgttact 360
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362

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<210> 219

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 219

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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccagcaagag cgataacggg 120
ctaaacacta gcacttttga ttttagcggc gttacagata aagtcaatat caacaagctc 180
actacagctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt agtggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360
tt                                                                                   362
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<210> 220

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 220

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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccagtaagag cgataacggg 120
ctaaacacta gcgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt agtggttaca 240
acccgtgttc agagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360
tt                                                                                   362
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<210> 221

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 221

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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccagtaagag cgataacggg 120
ctaaacacta gtgcttttga ttttagcggc gttacagata aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360
tt                                                                                   362
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<210> 222

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 222

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agattgaatg gccatagcgc tcatttttaa aatattgatg ccagtaagag cgataacggg 120
ctaaacacta gcgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgagttc agagttttgg gcaatactct atttttggcg aaaatatagg cgataagtcg 300
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cgcatgtgtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcggttact 360
tt 362

<210> 223

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 223

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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccacaaagag cgataacggg 120
ctaaacacta gcacttttga tttgagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttacg 240
accogtggtc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcatgtgtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcggttact 360
tt 362

<210> 224

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 224

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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccacaaagag cgataacggg 120
ctaaacatta gcacttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttaca 240
accogtggtc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcatgtgtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcggttact 360
tt 362

<210> 225

<211> 362

<212> DNA

<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 225

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agagtgaatg gccataacgc tcatttttaa aatattgatg ccagtaagag cgataacggg 120
ctaaacacta gcacttttga tttgagcggc gttacagaca aagtcaatat caacaagctc 180
actacagctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtggttacg 240
accogtggtc agagtttttg gcaatacact atttttggcg aaaatatagg tgataagtct 300
cgcatgtgtg tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcggttact 360
tt 362

<210> 226

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gcgcttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtggttacg 240
acccgtgttc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tgtcgcccg cctgttcttg gggcgttact 360
tt
362

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<210> 227

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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ctaaacacta gcgytttggg ttttagcggc gttacagaya aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacrttaaa aactttgaya ttaaggaatt ggtggttaca 240
acccgagttc aaagtttttg gcaatacact atttttggcg aaaatatagg cgatmagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagccrg cctattcttg gggcgttact 360
tt
362

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<210> 228

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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<400> 228
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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccacaaagag cgataatggt 120
ataaacacta gcacttttga tttgagcggc gttacagaca aggtcaatat caacaagctc 180
attacagctt ccactaatgt gaacattaaa aactttgaca ttaaggaatt ggtggttaca 240
acccgtgttc aaagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgttagttt gcaaacggga tatagcccg cctattcttg gggcgttact 360
tt
362

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<210> 229

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

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<400> 229
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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccagcaagag cgataacggg 120
ctaaacacta gcaccttggg tttcagtggc gttacagaca aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgata ttaaggaatt ggtggttaca 240
acccgagttc agagtttttg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattggtg tcgtgagttt gcaaacggga tatagcccg cttattcttg gggcgttact 360
tt
362

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<211> 362
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<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccagtaagag cgataacggg 120
ctaaacacta gcgctttgga ttttagcggc gttacagaca aagttaatat caacaagctc 180
actacatctg ccactaatgt gaacgttaaa aactttgaca ttaaggaatt ggtgggttaca 240
acccgagttc aaagttttgg gcaatacact atttttggcg aaaatatagg cgataagtct 300
cgcattgggtg tcgtgagttt gcaaacggga tatagccctg cttattctgg gggcgttact 360
tt 362

<210> 231
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 231
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agagtgaatg gccatagcgc tcatttttaa aatattgatg ccagtaagag cgataacggg 120
ctaaacacta ccactttgga tttcagcggc gttacagata aagtcaatat caacaagctc 180
actacatctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt agtgggttaca 240
acccgagttc agagttttgg gcaatacact atttttggcg aaaatatagg cgataagctg 300
cacattgggtg tcgtgagttt gcaaacggga tatagcccag cctattctgg gggcgttact 360
tt 362

<210> 232
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 232
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aaagtgaatg gccatagcgc tcatttttaa aatattgatg ctagtaagag cgataacggg 120
ctaaacacta gcgctttgga tttgagcggc gttacaaaca aggtcaatat caacaagctc 180
actacagctg ccactaatgt gaacattaaa aactttgaca ttaaggaatt ggtgggttaca 240
acccgagttc agagttttgg gcaatacact atttttggcg aaaatatagg cgataagtcg 300
cgcattgggtg tcgttagttt gcaaactggc tatagcccgg cctattctgg gggcgttact 360
tt 362

<210> 233
<211> 362
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 233
atggatgctc atacagctta ttttaatggc aatatttattc tgggaaaatc cacgaattta 60

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aaagtgaatg gccatagcgc tcatttttaa aatattgatg ccactaagag cgataatggt 120
ctaaacacta gcgcttttga tttgagcggc gttacaaaca aggtcaatat caacaagctc 180
actacagctg ccactaatgt gtccattaaa aactttgaca ttaaggaatt agtgggttacg 240
acccgtgttc agagtgttgg gcaatacact atttttggcg aaaatatagg cgatcaatcg 300
cgcattgggtg tcgttagttt gcaaactggc tatagcccgg cctattctgg gggcgttact 360
tt

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362

<210> 234

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 234

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gtggatgctc atacagctta ttttaatggc aatatttatac tgggaaaatc cacgaattta 60
aaagtgaatg gccatagcgc tcatttttaa aatattgatg ccactaagag cgataatggt 120
ctatacacta gcgcttttga tttgagcggc gttacaaaca aggtcaatat taacacgctc 180
actacagctg ccactaatgt gtccattaaa aactttgaca ttaaggaatt agtgggttacg 240
acccgtgttc agagtgttgg gcaatacact atttttggcg aaaatatagg cgatcaatcg 300
cgcattgggtg tcgttagttt gcaaactggc tatagcccgg cctattctgg gggcgttact 360
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362

<210> 235

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 235

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gtggatgccc atacgatcaa ttttaatggc aatatgtatt tgggaagatt tacgcattta 60
aaagtgaatg gtcatacagc caatttttaa gatattgatg ccagcaaggg tagaaatggt 120
atcgacacca ccatttttga ttttagcggc gttacaaaca aggtcaatat caacaagctc 180
accacagctg ccactaatgc ggccattaaa aattttgaca ttaaggaatt ggttggttaca 240
accaatgttt tgagtgtggg gaaatacact gattttaccg aagatatagg cgatcaatcc 300
cgcattggta tcgtgcgttt gcaaatggga tatagcccgg cctattctgg gggcgttact 360
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362

<210> 236

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 236

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gtggatgccc atacgatcaa ttttaatggc aatatgtatt tgggaagatt cacgcattta 60
aaagtgaatg gtcatacagc caatttttaa gatattgatg ccagcaaggg tagaaatggt 120
atcgacacca ccatttttga ttttagcggc gttacaaaca aggtcaatat caacaagctc 180
accacagctg ccactaatgc ggccattaaa aattttgaca ttaaggaatt ggttggttaca 240
accaatgttt tgagtgtggg gaaatacact gattttaccg aagatatagg cgatcaatcc 300
cgcattggta tcgttagttt gcaaacggga tatagcccgg cctattctgg gggcgttact 360
tt

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362

<210> 237

<211> 362

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 237

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gtggatgccc atacgatcaa ttttaaatggc aacatgtatt tgggaagatt cacgcattta 60
aaagtgaatg gccatacagc caattttaaa gatattgatg ccagcaaggg tagaaatggg 120
atcgacacca ctatttttga ttttagcggc gttacagaca aagtcaatat caacaagctc 180
actacagctg ccactaatgt gtccattaaa aactttgaca ttaaggaatt ggttgttaca 240
accaatgttt tgagtgtggg gaaatacact gattttaccg aagatatagg cgatcaatcg 300
cacattgggtg tcgttagttt gcaaactggc tatagcccgg tctattctgg gggcgttact 360
tt                                                                 362
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<210> 238

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 238

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ttagatttta gtggtgttac aggtaaggtc aatatcaaca agctcattac ggcttcact 120
aatgtggccg ctaaaaactt caacattaat gaattgattg ttaaaaccaa tggggtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttggaat ctggcactag gtcaatctat tctggcgtg ttaaattt 288
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<210> 239

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 239

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ttagatttta gtggtgttac aggtaaggtc aatatcaaca agctcatcac agcttcact 120
aatgtggccg ttaaaaaactt caacattaat gaattgattg ttaaaaccaa tgggtgtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg ttaaattt 288
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<210> 240

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 240

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ttagatttta gtggtgttac aggtaaggtc aatatcaaca agctcatcac agcttcact 120
aatgtggccg ttaaaaaactt caacattaat gaattgattg ttaaaaccaa tgggataagt 180
gtgggggaat acactcattt tagcgaagat atagggaagtc aatcgcgcat caataccgtg 240
cgtttggaat ctggcactag atcaatcttt tctgggggtg ttaaattt 288
```

<210> 241

<211> 288

<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 241
gtggatgctc atacagctaa ttttaaaggt attgatacgg gcaatggtgg tttcaacacc 60
ttagatttta gtggcgttac agacaagggt aatatcaaca agctcattac agcttccact 120
aatgtggcca ttaaaaactt caacattaat gaattggttg ttaagaccaa tggggtgagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttgga aa ctggcactag gtcaatcttt tctgggggtg tcaaattt 288

<210> 242
<211> 288
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 242
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggcgttac agacaagggt aatatcaaca agctcattac agcttccact 120
aatgtggcca ttaaaaactt caacattaat gaattggttg ttaagaccaa tggggtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
cgtttgga aa ctggcactag gtcaatctat tctgggggtg ttaaattt 288

<210> 243
<211> 288
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 243
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtgggtgttac aggtaagggt aatatcaaca agctcatcac ggcttccact 120
aatgtggccg ttaaaaacaa caacattaat gaattggttg ttaaaaacaa tgggataagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttgga aa caggcactag gtcaatcttt tctgggggtg tcaaattt 288

<210> 244
<211> 288
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 244
gtggatgctc atacagctaa ttttaaaggt attgatactg gtaatggtgg tttcaacacc 60
ttagatttta gtgggtgttac aaacaaagtc aatatcaaca agctcattac agcttccact 120
aatgtggccg ttaaaaactt caacattaat gaattggttg ttaagattaa tggggtgagt 180
gtgggggaat acacttattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
cgtttgga aa ctggcactag gtcaatctat tctggcggtg ttaaattt 288

<210> 245
<211> 288
<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 245

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gtggatgctc atacagctaa ttttaaaggt attgatactg gtaatggtgg tttcaacacc 60
ttagatttca gtggtgttac agacaaggct aatatcaaca agctcattac agcttccact 120
aatgtggcca ttaaaaactt caacattaat gaattggtgg ttaaaaccaa tgggtataagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
cgtttgga aa ctggcactag gtcaatctat tctggcggtg ttaaattt 288
```

<210> 246

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 246

```
gtggatgctc atacagctaa ttttaaaggt attgatactg gtaatggtgg tttcaacacc 60
ttagatttca gtggtgttac agacaaggct aatatcaaca agctcattac agcttccact 120
aatgtggcca ttaaaaactt caacattaat gaattggtgg ttaaaaccaa tgggtataagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttgga aa ctggcactag gtcaatctat tctggcggtg ttaaattt 288
```

<210> 247

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 247

```
gtggatgccc atacagctaa ttttaaaggt attgatactg gtaatggtgg tttcaacacc 60
ttagatttca gtggcggttac aaacaaagtc aatatcaaca agctcattac agcttccact 120
aatgtggcca ttaaaaactt caacattaat gaattggtgg ttaaaaccaa tgggtataagc 180
gtgggggaat acactaattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
cgtttgga aa ctggcactag gtcaatctat tctggcggtg ttaaattt 288
```

<210> 248

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 248

```
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ttagatttca gtggtgttac aggtaaggct aatatcaaca agctcatcac agcttccact 120
aatgtggcgg ttaaaaactt caacattaat gaattgattg ttaaaaccaa tgggggtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttgga aa ctggcactag gtcaatctat tctggcggtg ttaaattt 288
```

<210> 249

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 249

```
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac aggtaagggtc aatatcaaca agctcatcac agcttccact 120
aatgtggccg ctaaaaactt caacattaat gaattgattg ttaaaaccaa tggggtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttgaaaa ctggcactag gtcaatctat tctggcggtg ttaaattt 288
```

<210> 250

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 250

```
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ttagatttta gtggtgttac aggtaagggtc aatatcaaca agctcatcac agcttccact 120
aatgtggccg ttaaaaaactt caacattaat gaattgattg ttaaaaccaa tgggtgagtg 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
cgtttgaaaa ctggcactag gtcaatctat tctggcggtg ttaaattt 288
```

<210> 251

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 251

```
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac aggtaagggtc aatattaaca agctcattac ggcttccact 120
aatgtggccg ttaaaaaactt caacattaat gaattgattg ttaaaaccaa tggggtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttgaaaa ctggcactag gtcaatcttt tctgggggtg ttaaattt 288
```

<210> 252

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 252

```
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgtgac aggtatagtc aatatcaaca agctcatcac agcttccact 120
aatgtggccg ttaaaaaactt caacattaat gaattgattg ttaaaaccaa tggggtgagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttgaaaa ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 253

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 253

```
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ttagatttta gtggtgttac aggtaaggtc aatatcaaca agtcataac ggcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattgattg ttaaaaccaa tgggtgtgagt 180
gtgggggaat acacttattt tagcgaagat ataggcagtc aatcgcacat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 254

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 254

```
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ttagatttta gtggtgttac aggtaaggtc aatatcaaca agtcattac ggcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattgattg ttaaaaccaa tgggtgtgagt 180
gtgggggaat acacttattt tagcgaagat ataggcagtc aatcgcacat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 255

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 255

```
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ttagatttta gtggtgttac agacaaagtc aatatcaaca agtcattac agcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattgattg ttaaaaccaa tgggggtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttggaat ctggcaccag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 256

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 256

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gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac agacaaagtc aatatcaaca agtcattac ggcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattgattg ttaaaaccaa tgggggtgagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 257

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 257

```
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac agacaaagtc aatatcaaca agctcattac agcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattggttg ttaaaaccaa tggggtaagt 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgccat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 258

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 258

```
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac aaacaaggtc aatatcaaca agctcattac ggcttcact 120
aatgtggcca ttaaaaactt caacattaat gaattgattg ttaaaaccaa tgggatgagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgccat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 259

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 259

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gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac aaacaaggtc aatatcaaca agctcattac agcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattgattg ttaaaaccaa tggggtgagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgccat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
```

<210> 260

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 260

```
gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac aaacaaggtc aatatcaaca agctcattac ggcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattgattg ttaaaaccaa tggggtgagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgccat caataccgtg 240
cgtttggaat ctggcactag gtcaatcttt tctgggggtg tcaaattt 288
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<210> 261

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 261
 gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
 ttggatttta gtggcggttac agacaaagtc aatatcaaca agctcattac agcttccact 120
 aatgtggcca ttaaaaactt caacattaat gaattggttg ttaagaccaa tggggtgagt 180
 gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
 cgtttgaaaa ctggcactag gtcaatcttt tctgggggtg tcaaattt 288

<210> 262

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 262
 gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
 ttagatttta gtgggtgttac aggtaaggtc aatatcaaca agctcattac ggcttccact 120
 aatgtggccg ttaaaaactt caacattaat gaattggttg ttaagaccaa tggggtgagt 180
 gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
 cgtttggaaa ctggcactag gtcaatcttt tctgggggtg tcaaattt 288

<210> 263

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 263
 gtggatgctc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttcaacacc 60
 ttagatttta gtgggtgttac aggtaaggtc aatatcaaca agctcattac ggcttccact 120
 aatgtagccg ttaaaaactt caacattaat gaattggttg ttaagaccaa tggggtgagt 180
 gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
 cgtttggaaa ctggcactag gtcaatcttt tctgggggtg tcaaattt 288

<210> 264

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 264
 gtggatggtc atacagctaa ttttaaaggt attgatacgg gtaatggtgg tttccacacc 60
 ttagatttta gtgggtgttac aggtaaggtc catatccaca agctcattac ggcttccact 120
 aatgtggccg ttaaaaactt ccacattaat gaattgattg gtaaaaccaa tgggataagt 180
 gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
 cgtttggaaa ctggcactag gtcaatcttt tctgggggtg tcaaattt 288

<210> 265

<211> 288

<212> DNA

<213> Artificial Sequence

<220>

<223> Helicobacter pylori vacA nucleic acid sequence

<400> 265
gcgagcgctc atacggtcaa ttttaaagat attgatactg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac aaacaaggtc aatatcaaca agctcattac agcttcact 120
aatgtggcca ttaaaaactt caacattaat gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcgcat caacaccgtg 240
cgtttggaat ctggcaccag gtcaatctat tttgggggtg ttaaatta 288

<210> 266
<211> 288
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 266
gcgagcgctc atacggtcaa ttttaaagat attgatactg gtaatggtgg tttcaacacc 60
ttagacttta gtggtgttac aaacaaggtc aatatcaaca agctcattac agcttcact 120
aatgtggccg ttaaaaactt caacattaat gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcgcat caacaccgtg 240
cgtttggaat ctggcactag gtcaatctat tctgggggtg ttaaattt 288

<210> 267
<211> 288
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 267
gcgagcgctc atacggtcaa ttttaaagat attgatactg gtaatggtgg tttcaacacc 60
ttagacttta gtggtgttac aaacaaggtc aatatcaaca agctcattac agcttcact 120
aatgtggcca ttaaaaactt caacattaat gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcacat caacaccgtg 240
cgtttagaaa ctggcactag gtcaatctat tctgggggtg ttaagttt 288

<210> 268
<211> 288
<212> DNA
<213> Artificial Sequence

<220>
<223> Helicobacter pylori vacA nucleic acid sequence

<400> 268
gcgagcgctc atacggtcaa ttttaaagat attgatactg gtaatggtgg tttcaacacc 60
ttagatttta gtggtgttac aaacaaggtc aatatcaaca agctcattac agcttcact 120
aatgtggccg ttaaaaactt caacattagt gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcggagat ataggcaatc aatcgcgcat caacaccgtg 240
cgtttggaat ctggcactag gtcaatctat tctgggggtg ttaagttt 288

<210> 269
<211> 288
<212> DNA
<213> Artificial Sequence

<220>
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<400> 269

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aatgtggcca ttaaaaactt caacattaat gaattggtgg ttaaaaccaa tgggataagc 180
gtgggggaat acactcattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
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<210> 270

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<212> DNA

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 270

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aatgtggccg ttaaaaactt caacattaat gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcgcat caacaccgtg 240
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<210> 271

<211> 288

<212> DNA

<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 271

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aatgtggccg ttaaaaactt caacattaat gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcagtc aatcgcgcat caataccgtg 240
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<210> 272

<211> 288

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<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 272

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aatgtggcca ttaaaaactt caacattaat gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcgcat caataccgtg 240
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<210> 273

<211> 288

<212> DNA

<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 273

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aatgtggccg ttaaaaaactt caacattaat gaattgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcgcat caacaccgtg 240
cgtttggaat ctggcactag gtcaatctat tctgggggtg ttaagttt 288
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<211> 288

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<213> Artificial Sequence

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<223> Helicobacter pylori vacA nucleic acid sequence

<400> 274

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gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcgcat caacaccgtg 240
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gtgggggaat acactaattt tagcgaagat ataggcagtc aatcgcgcat caacaccgtg 240
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<211> 288

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aatgtggcca ttaaaaaactt caacattaat gagttgttgg ttaaaaccaa tgggataagt 180
gtgggggaat acactaattt tagcgaagat ataggcaatc aatcgcgcat caacaccgtg 240
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<213> Artificial Sequence

<220>

<223> vacA primer

<400> 277

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<210> 278
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<212> DNA
<213> Artificial Sequence

<220>
<223> vacA primer

<400> 278
ctgcttgaat gcgccaaac 19

<210> 279
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> vacA primer

<400> 279
cacagccact ttcaataacg a 21

<210> 280
<211> 20
<212> DNA
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<220>
<223> vacA primer

<400> 280
cgtcaaaata attccaaggg 20